in 4, stones were found in the liver. The preponderance of bilirubin stones is explained by the vegetable diet of the Japanese. Much tea is used and very little alcohol in the form of rice wine (sake). The frequency with which stones were found in the common duct and liver is explained by the late period in which the patients came to operation. Of the 41 pure gallstone cases, in 22, or 53.6 per cent., the stones were found in the common duct, and in 18, or 44 per cent.. in the cystic duct or gall-bladder.

THERAPEUTICS.

UNDER THE CHARGE OF

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Further Observations on the Importance of Cellulose in the Diet of Diabetics.—SCHMIDT and LOHRISCH (*Deut. med. Woch.*, 1908, xlviii, 2012), in a previous communication (*Deut. med. Woch.*, 1907, xlvii), advocated the use of cellulose in the dietetic treatment of diabetics. In the present papers they reiterate their former conclusions with some additional observations. Their earlier observations were mainly with cellulose derived from white cabbage. They have found that a preparation of cellulose from agar-agar is better tolerated and supplies more nourishment than cellulose derived from white cabbage. The preparation is a yellow powder, a hemicellulose, neutral in reaction, smelling and tasting like malt. Dissolved in cold water, the preparation has a prompt reducing action and will deflect light slightly to the left, but is non-fermentable. After boiling or hydrolysis with hydrochloric acid light is deflected to the right, and tests show that the sugar formed is galactose. Their experiments showed that agar-agar formed galactose from the hemicellulose, galactan. This is very slowly broken up and absorbed, and this slow gradual assimilation is the principal reason for its toleration by the diabetic; 50 to 100 grams of the preparation of agar-agar with furnish 20 to 40 grams of galactan. Moderate doses give no ill effects, at most causing more or less fluid stools. Larger doses may cause diarrhœa and flatulence. They believe that 60 to 75 per cent. of the preparation is absorbed. No increase in the amount of sugar or acetone occurs in the urine after its use.

Gastric Ulcer.—KATZENSTEIN (*Berl. klin. Woch.*, 1908, xxxix, 1749) has performed some interesting experiments which, he thinks, add some facts to explain the etiology of gastric ulcer. In an earlier paper (*Deutsch. med. Woch.*, 1907, iii and iv) he has shown that the beneficial effect of gastro-enterostomy is largely due to the fact that alkaline fluids enter the stomach and thus favor the healing of the ulcer. In one of his experiments Katzenstein made two wounds, one in the stomach and the other in the bowel, and cauterized both with hydrochloric acid.

The stomach wound healed in two days, while the intestinal wound perforated. He thinks that this result indicated that the stomach possessed some protective substances against the action of hydrochloric acid. He stitched a loop of the intestine so that it projected into the stomach, and this loop was digested. A portion of the spleen similarly placed was also digested. On the other hand, a fold of the gastric mucous membrane or a piece of the duodenum resisted the action of the gastric juice. Similar experiments in vitro gave the same results. Portions of gastric or duodenal mucous membrane were not digested, while pieces of other tissues were. Furthermore, the presence of pieces of gastric mucous membrane served to protect other tissues against artificial digestion. Therefore he believes that even the dead gastric mucous membrane contains some substance which acts as an antiseptic agent. He has succeeded in isolating this protective substance or antipepsin. He believes that it may be of great value in the treatment of gastric ulcer on the assumption that there is a deficiency of antipepsin in that disease.

The Therapeutic Use of Bromides upon an Experimental Basis.—Wyss (*Med. Klin.*, 1908, xlvii, 1794) has performed experiments on animals producing serious symptoms by the administration of bromides. The animals develop ataxia progressing to fatal paresis. He explains this train of symptoms, which are ordinarily regarded as bromide poisoning, by a chlorine deficiency. It is most interesting to note that it was possible to save these animals by the injection of sodium chloride. They recuperated entirely in twenty-four hours with no sign of their previous serious condition. He believes that continuous administration of the bromides causes a considerable retention of bromine ions in the blood. Consequently sodium chloride is excreted in order to prevent the concentration of salts in the blood. The deficiency of the chloride leads to serious consequences, which may be relieved by the injection of normal saline solution. He applies his findings to the treatment of epileptics in the clinic. This is accomplished by the administration of bromides and the simultaneous reduction of salt in the food. Salt is absolutely prohibited, however, only in urgent cases, and then only for a short time. By this method the effect of the bromides is more rapidly obtained, and less amounts are required for efficient therapeutic results.

The Vaccine Treatment of Typhoid Fever.—Watters and Eaton (*Med. Record.* 1909, iii, 93) report 30 cases of typhoid fever treated by vaccines. They noted, in many of the cases, a period of aggravation, the "negative" phase, followed shortly by a period of amelioration, the "positive" phase. Occasionally they were able to determine a very transient amelioration followed by the usual manifestations of the "negative" and "positive" phases. It seemed to them that the best results occurred in those cases in which a brief "negative" phase occurred. They had two deaths in the 30 cases treated. One of the fatal cases had been ill a month before the treatment was begun and was practically beyond help. This leaves one fatality in a case in which treatment was begun at the end of the second week. They believe that the earlier the treatment is begun the better the prognosis. They say that the number of cases thus treated is, of course, too small to justify any absolute conclusions. However, the effects in the individual cases were so noticeable that it seemed wise to publish them in order to stimulate the use of the vaccines by other observers. The beneficial effects upon the temperature were notable, and they have included in their report the individual temperature charts.

The inoculations were made into the subcutaneous tissue overlying the biceps muscle and consisted of a stock emulsion of typhoid bacilli standardized and sterilized by moist heat at 60° C. for twenty minutes and by the addition of 0.3 per cent. of lysol. They gave it in doses of from 15 to 50 minims, the average dose being 25 to 40 minims. Judging from their own experience, they would advise its use in larger doses.

The Treatment of Gout by Thyminic Acid.—FENNER (*Lancet*, 1908, ii, 1804) has obtained good results by the use of thyminic acid in the treatment of gout. He believes that the use of thyminic acid to hasten the elimination of uric acid rests upon a scientific basis. Thyminic acid, as well as uric acid, is produced by the oxidation of the purin bodies. It forms a combination with uric acid which is soluble and which cannot be precipitated. He believes that uric acid normally circulates in the blood in this combination. In gout, he thinks, there is some fault with the combination of uric acid and thyminic acid, though the amount of uric acid in the blood may not be increased above the normal. Therefore, if thyminic acid can be supplied to the blood by ingestion or by any other means in sufficient amount to retain the uric acid in solution, attacks of gout will be prevented. Thyminic acid is now prepared synthetically, and Fenner advocates the daily use of 4 grains, taken after meals for a period of three months and then every alternate week, to prevent the onset of acute symptoms. He believes that it is especially suitable for the prevention of acute exacerbations of chronic gout and for the gradual improvement of the symptoms of a chronic or irregular gout. Thus he has found it particularly useful in the treatment of obesity, so often allied with gout, and in the manifestations of irregular gout, such as eczema, asthma, glycosuria, and stomach disorders. For the acute attack, thyminic acid is not invariably successful and he prefers to use in such cases mercurials with colchicum or colchicum with aspirin. After the acute attack has subsided large doses of thyminic acid should be given together with appropriate local treatment.

Some Indigestible Carbohydrates in the Digestive Tract.—MENDEL (*Zent. f. d. ges. Phys. des Stoffw*, 1908, xvii, 641) reviews the literature concerning the nutritive value of carbohydrate foods which contain substances closely allied to cellulose and are chiefly derived from lichens and algæ. Among these are Iceland moss, agar agar, Jerusalem artichokes, dulse, and salep. These contain various polysaccharides of complex structure, having the class name hemicellulose, which are more or less closely allied to one another. They are used for food in the regions where they naturally occur and have been advocated by many observers to supply the carbohydrate loss in diabetes. It is a well-known fact that the action of the enzymes which split up carbohydrates, is a specific one for the different polysaccharides. Mendel does not believe that enzymes for the splitting up of these complex polysaccharides exist in the human economy. Consequently, he does not believe that their carbohydrate content can be hydrolyzed into the diffusible sugars. It is commonly understood that man cannot utilize cellulose because he is not provided with suitable digestive enzymes. The carbohydrates of the lichens and the algæ seem to be allied in their chemistry closely to cellulose. There seems to be little reliable evidence concerning the digestibility of these carbohydrates, but that which we have is largely negative. A number of observations have been made with inulin. Levulose may be obtained from inulin by hydrolysis with acids. Since some diabetics tolerate levulose better than dextrose foods containing inulin have been recommended in the treatment of diabetes. Experiments have shown that salivary, gastric, pancreatic, and intestinal juices all fail to hydrolize inulin. In addition, inulin, when fed to animals, does not increase the glycogen content of the liver as levulose does. It seems that the inulin is either not utilized at all or very slightly, and it is, therefore, not strange that clinicians should find no increase of glycosuria after its use. Similar results have been obtained with the polysaccharides derived from algæ and lichens. Saiki examined a number of preparations of these classes in Japan, where they are widely used as food, and found that they are utilized very poorly for the purpose of nutrition. It has also been demonstrated that Iceland moss resists the action of the intestinal bacteria. Mendel suggests that further work should be done to ascertain the action of certain vegetable enzymes in hydrolyzing these polysaccharides. Mendel's own experiments showed that the greater part of these carbohydrates is excreted in the feces, unchanged. He attributes the good effects of agar agar in chronic constipation to this fact. Mendel believes that the results of the experimental studies should warn against the hasty acceptance of every carbohydrate foodstuff, as a food possessing a real nutritive value. The nutritive value of any food can be established only by accurate metabolic work. He adds that many of the group discussed form palatable accessory articles of diet both in health and disease.

Etiological and Therapeutic Researches in Pernicious Anemia.—Reicher (*Berl. klin. Woch.*, 1908, xli, 1838, and xlii, 1893) reviews the many different theories of the etiology of pernicious anemia and characterizes most of them as unsatisfactory, or at least questionable. He speaks most favorably of the hemolytic theory, and quotes the work of many observers which tend to support this view. These quoted observations have to do with anemias which are caused by different, though apparently related, substances. He speaks especially of the theories of the production of anemia by more or less closely allied lipoid substances. Considerable work has been done to point out the relation of a hemolytic substance as a cause of the anemias of the intestinal parasites. A similar explanation has been advanced to explain the anemia of carcinoma. He quotes the experiments of Keyes and Sachs, who prevented the hemolytic action of cobra lecithid in vitro by cholesterin. Reicher was able to cause a remarkable improvement in the anemia, produced by cobra lecithid by treatment with cholesterin, and thus he was led to try cholesterin in pernicious anemia. Certain observers have found that when cholesterin is given by the mouth, the cholesterin content of the blood is raised. Others have found a diminished amount of cholesterin both in the red blood cells and in the serum of the blood of pernicious anemia. He used a 3 per cent. solution of cholesterin in hot olive oil. This solution remains stabile when cold, but becomes cloudy. This cloudiness will disappear on warming. A few drops of oleum menthæ will improve the taste. It should be given in tablespoonful doses, so that during the day 100 c.c. is given. The medication is well borne by the stomach. It should be given in oil, because when given in a watery emulsion it is quickly excreted in the feces. Reicher gives the detailed histories of four cases in which he used cholesterin with good results, and thinks that a larger experience will justify its more frequent use.

PEDIATRICS.

UNDER THE CHARGE OF

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The Heart Lesions of Infancy and Childhood.—I. A. Abt (*Archives of Diagnosis*, 1908, i. 127) states that the first heart sound in children is normally louder than the second. Accentuation of the second pulmonic sound, if constant, is always a pathological sign. Accidental heart murmurs occur less commonly than in adults. Endocardial heart murmurs are usually soft, short, and blowing. Prominent causes are acute rheumatism, tonsillitis, chorea, pneumonia, and scarlet fever. Probably 40 per cent. of the cases are pure mitral regurgitation, while double mitral disease occurs in probably 30 per cent. of the cases, pericarditis in 20 per cent. The latter is a very grave condition and death results quite frequently either during the acute illness or is due to associated endocarditis and the pericardial adhesions. Endocarditis also offers a grave prognosis, especially in early childhood. Aortic insufficiency presents the gravest prognosis, mitral insufficiency the best.

Acute Anterior Poliomyelitis.—L. S. Archambault (*Albany Medical Annals*, 1908, xxix, 941) reports the case of a girl, aged ten years, in whom the use of the right arm was suddenly lost at the age of eighteen months. The child had been slightly feverish a few days prior to the onset of the paralysis, but there were no convulsions, no vomiting, no diarrhea, nor any other of the symptoms commonly observed in the initial stage of acute anterior poliomyelitis. For a time she was also weak in her feet. At the time of the report the child could perform all movements of the arm with the exception of the movements performed by the deltoid muscle. This muscle was totally disabled; it was completely wasted and did not respond to either faradic or galvanic stimulation, even though a very strong current was employed. There were no trophic or vasomotor disturbances. The biceps was also slightly weakened.